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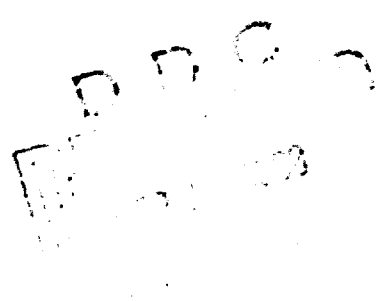
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K istorii izucheniya sibirskoi yazvy v Rossii

[The history of anthrax research in Russia]

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(In Russian)

An insignificant number of works has been devoted to the problem of the history of anthrax research in Russia in the domestic literature. Of recently published literature one should mention the communication of Paikin "From the history of anthrax research in Russia" (1951), which presents interesting data on the remarkable Russian doctors Eshka, Nozhevshchikov, and Andreevskii, who for the first time isolated the anthrax bacteria as a separate nosological unit and demonstrated the possibility of transmitting the disease from animal to animal and from animal to man (observations of 1751-1789). Thus, in the second half of the eighteenth century original research on anthrax was conducted by Russian doctors; the disease at that time occurred universally as an acute disease of man and animals.

The extensive works of the following Russian doctors may be cited: Gamaleya, 1762; Petersen, 1790; Chorba, 1826; Khotovitskii, 1831; Bogdanov, 1863; Lyubimov, 1867, and others, who have made their contributions to the study of this disease at a later date.

Doctor of Medicine Yurii Ropelevskii should be included among the Russian scientist-doctors who did original research in this field and were later undeservingly forgotten. He, for the first time, thoroughly studied the initial manifestations of the cutaneous form of anthrax in man by using clinical, microscopic, and histological methods. [Begin p.153] This research was published in the Military Medical Journal of 1865¹.

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1. We shall give a short biography of YU. O. Ropelevskii (after L. F. Zmeev): Born in 1828, he was graduated from Petersburg Medico-Surgical Academy in 1848 with the title of doctor and awarded the silver medal. He worked in the Novgorod Military Hospital from 1859, was docent of the Medico-Surgical Academy, and was later Senior Surgeon with the Ural Cossacks. In 1859 he defended his dissertation for the degree of Doctor of Medicine on the subject of "Osteomyelitis".

Of special interest is Ropelevskii's subdivision of the cutaneous form of anthrax into two types according to the morphological picture and clinical manifestation of the disease. Apropos he writes: "From all the cases I have seen, it may be concluded that the form of anthrax varies according to which of the following two conditions it occurs under: 1) does the infectious substance strike an exposed place on the thin skin, or 2) does the epidermis remain undamaged with infection?"

Accordingly, this author divided it into two forms differing in the clinical picture. Based on personal observations, Ropelevskii established that with the first form morphological changes start particularly rapidly: 3-4 hours later the patient begins to feel a slight itching and occasional pain at the site of infection. In an objective examination of the patient, redness and swelling are noticeable around the area of the skin of the exposed epidermis. After 6-12 hours the exposed place appears as an insensitive dry gangrenous scab, brownish-black in color, located on the infiltrated base and somewhat recessed in the center. The tissues surrounding the scab have a cartilagenous-like consistency, insensitive to pressure. The size of the scab usually corresponds to that of the original abrasion. In pricking the scab itself and the surrounding corona with a needle, the patient feels no pain whatsoever. The epidermis on the inflamed corona, which surrounds the scab, raises vesicles filled with a clear or sanious fluid.

The author clearly describes the clinical symptomatology of the course of the disease in these cases: typhoid condition of the patient with the manifestation of collapse, dyspeptic disorders, and enlargement of the liver.

In the second form of the disease, as indicated by Ropelevskii (1865), "there is another initial form and its development is much slower." He further describes the development of the anthrax carbuncle on areas of the skin with negligible injury or without injury. The onset of the disease with the absence of lesions, in the author's opinion, is the most frequent, inasmuch as "it very rarely happens that people decide to subject themselves to obvious danger by handling sick animals or hides at the time they have any kind of lesions on open areas of the body." The second form, according to Ropelevskii's division, is essentially the classical form of the disease. In this case, in accordance with anatomicopathological changes, and also by reason of practical convenience, he considers it feasible to reduce the periods of the disease to three, and points out that "a known method of treatment applies to each stage of the disease."

Ropelevskii's stated opinion on the two forms of cutaneous manifestations of anthrax was later confirmed by Lyubimov in his monograph (1867), where he also found that in the event of the development of an anthrax carbuncle on the skin, with the exposed

epidermis, "... a malignant pustule develops extremely rapidly, the first stage is hardly noticed, the entire site of the lesion is insensitive, and there is a dry scab surrounded by a corona 12-24 hours after the onset of infection. The appearance of the first stage escapes the attention of both the physician and the patient"(page 45). The duration of the incubational period changes: ... the contagion, acting on injured skin or open wounds, quickly produced a general intoxication because of its rapid absorption" (page 55).

Ropelevskii (1865) in his observations of patients with the cutaneous form of anthrax carried out thorough histological and microscopic analyses of the anthrax carbuncle. He established that with the penetration of infection through skin without lesions the first symptoms of the disease may begin around the hair follicle. Examining the site of injury with 25 X magnification, Ropelevskii noted that the small red spots which had formed on the skin were in the form of an irregular radial ring, surrounding the opening of the efferent duct of the sebaceous gland. In histological studies of the malpighian epidermal layer "an intensified proliferation of cells was observed", and in the fluid of the original site of injury the author found "rod-shaped Browel [brauel?] bodies," as the anthrax bacteria were called at that time. With regard to this, Lyubimov wrote: "Of the Russian scientists only Ropelevskii was fortunate enough to find Davain's bacteria [bakteridy] in anthrax pustules and in the blood; I was not able to see them in careful study of the scab and blood of a patient who dies from anthrax in the autumn of 1864 at the clinic of Kazan' professor Beketov."

In studying the initial manifestations of the disease, Ropelevskii especially stressed that attention should be given to an early diagnosis of the cutaneous form of anthrax [Begin p.154], since the already-developed clinical picture of the disease does not present any particular difficulties for making a diagnosis. He wrote: "... it is enough to see anthrax once in order to retain a mental picture of it forever". However, there are cases where the diagnosis of anthrax is difficult: "In the early stage when the pustule is insufficiently developed, when it rests on the skin covered with hair and is hardly noticeable, and the patient indicates suffering expressed by swelling of the lymph nodes in sites far-removed from the pustule; the special attention of the physician is required in all these cases in order to precisely establish the existence of the disease." The author gives a differentiated diagnosis between anthrax and purulent lesions of the skin (furuncles), considering that the absence of pus in the focus of infection in the case of anthrax is a distinctive symptom of this disease. Great importance has been attached to this symptom by other Russian researchers, who say that the name of the disease, pustula maligna, is incorrect in principle.

In the section on treatment of anthrax Ropelevskii correctly pointed out that it is necessary to use general as well as localized

treatment, since the disease attacks the whole organism of man. He correctly directed the attention of readers to measures which prevent the very possibility of infection, to "... prophylactic moments which are achieved by experience and actively guard man against anthrax infection."

There are, certainly, individual incorrect statements in the works of Ropelevskii which reflect the level of knowledge of that time, but these do not detract from the value of his work and once again speak for the necessity of mastering the legacy of Russian scientists who have investigated anthrax in man.

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